# Mahdi Taherahmadi

M.Sc. Student, Computing Science, Simon Fraser University, BC, Canada

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## Research Interests

Embodied AI, 3D Scene Understanding, Human-Robot Interaction, Representation Learning, Multi-Modal Learning, Offline Reinforcement Learning

## Education

### Simon Fraser University, British Columbia, Canada

*M.Sc*, Computing Science - **CGPA: 3.93** *Sept' 19 - June' 22*
*Thesis:* Navigational Intent, Emotion and Disengagement prediction in Human-Robot Interactions.

### Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

*B.Sc*, Computer Engineering. *July' 13 - July' 18*
*Thesis:* Design And Implementation Of An Embedded Deep Learning Based Advanced Driver-Assistance Systems (ADAS).

## Research Experience & Projects

### Computer Vision Research Intern - WRNCH AI

**- Multi-Person 3D Human Pose Estimation from Monocular RGB**
*Spet '21 - Present*

### Research Assistant - ROSIE Lab

**- Learning the Effect of Robot Action and Context on Human Positivity in Real-Time Human Interactions using Sequential Multi-modal Autoencoders**
*Supervisor: Prof. Angelica Lim* *Apr '20 - Spet '21*

### Research Assistant - MARS Lab

**- Optimal Control Inspired Probabilistic Model-Based Human Navigational Intent Inference**
*Supervisor: Prof. Mo Chen* *Aug '19 - Spet '21*

### Data Analyst - Rahnema Co.

**- RDMA Big Data R&D Team**
*Jan '18 - Mar '19*

### Research Intern - AIRLab - Polytechnic University of Milan

**- Simulation and Evaluation of Realistic Wireless Communication in Multi-Robot Scenarios**
*Supervisor: Prof. F.Amigoni* *May '17 - Sept '17*

### Research Assistant - Cognitive Robotics Lab - AUT

**- Vision-based Advanced Driver Assistance System(ADAS)**
*BSc Thesis - Superviser: Dr. Shiry* *Oct '16*

**- Victim Detection and 3D Pose Estimation from 2D Images for a Rescue Robot**
*Supervisor: Dr. Shiry* *Nov '16*

**- RoboCup Rescue Simulation League Base Code**
*Team SOS VR, Supervisor: Dr. Shiry* *Sept '16*

## Publications

**TaherAhmadi M**, Gonzalez-Garcia A. "Single-Shot Multi-Person 3D Pose Estimation From Monocular RGB With Transformers". (Under preparation).

**TaherAhmadi M**, Chen M, Lim A. "Disengagement Prediction in Real-Time Human Interactions using Hierarchical Recurrent Neural Networks". (Under preparation).

**TaherAhmadi M**, Agand P, Chen M, Lim A. "Optimal Control Inspired Probabilistic Model-Based Human Navigational Intent Inference". *The International Conference on Robotics and Automation. ICRA*. 2022(Under Review).

Zhang Z, Rhim J, **TaherAhmadi M**, Yang K, Lim A, Chen M. "SFU-store-nav: A multimodal dataset for indoor human navigation". *Data in Brief. 2020 Dec 1;33:106539.*

## Awards & Achievements

**Computing Graduate Fellowship** - *Simon Fraser University* *Jan '20*
**3rd Place** - *FIRA RoboWorld Cup 2018* *Aug '18*
- Team MCS, Simurosot - Miro Middle, Taichung, Taiwan
**3rd Place** - *FIRA RoboWorld Cup 2018* *Aug '18*
- Team MCS, Simurosot - RoboChallenge, Taichung, Taiwan
**13th Place** out of 100 teams - *AUTDMC 2017* *Nov '17*
- Amirkabir Data Mining Cup 2017, Tehran, Iran
**2nd Place** - *RoboCup 2017* *July '17*
- Team SOS VR, Rescue Simulation Virtual Robot league, Nagoya, Japan
**1st Place** - *RoboCup IranOpen 2017* *Apr '17*
- Team SOS VR, Rescue Simulation Virtual Robot league, Tehran, Iran
**9th Place** out of 60 Teams - *Sharif Programming Marathon 2016* *Sept '16*
- Magnet: The Localized Shopping Recommender System using PredictionIO Platform, Sharif University of Technology, Tehran, Iran
**3rd Place** - *RoboCup 2016* *July '16*
- Team SOS VR, Rescue Simulation Virtual Robot league, RoboCup 2016, Leipzig, Germany
**3rd Place** - *RoboCup 2015* *July '15*
-Teen size humanoid soccer league, RoboCup 2015, Hefei, China
**Top 0.03%** - among more than 300,000 participants *July '13*
- Nation-wide University Entry Exam

## Teaching Experience

Computing Science, Simon Fraser University:
**- Teaching Assistant** - *Affective Computing* - Dr. Angelica Lim *summer '20*
Computer Engineering, Amirkabir University of technology:
**- Teaching Assistant** - *Linear Algebra and its Applications* - Dr. Ehsan Nazerfard *spring '17*
**- Teaching Assistant** - *Principles of Programming Languages(C)* - Dr. Shiry *Fall '16*
**- Teaching Assistant** - *Engineering Statistics* - Dr. AmirHaery *Spring '16*
**- Teaching Assistant** - *Discrete Structures* - Dr. Fallah *Spring '16*
**- Teaching Assistant** - *Data Structures & Algorithms* - Dr. Dehghan *Fall '15*
**- Teaching Assistant** - *Principles of Programming Languages(C)* - Dr. Shiry *Fall '15*
**- Teaching Assistant** - *Advanced Programming (JAVA)* - Dr. Pourvatan *Spring '15*
**- Teaching Assistant** - *Principles of Programming Languages(C)* - Dr. Shiry *Fall '14*
Medical Engineering, Amirkabir University of technology:
**- Teaching Assistant** - *Robotics* - Dr. AhmadiPajouh *Fall '15*

## Notable Coursework Projects

**Leveraging Adversarial training for Depth Estimation** - *Machine Learning* *Fall '19*
**Power Usage Data Time Series Analysis** - *Statistical Machine Learning* *Fall '16*
**Face Recognition Using SVD** - *Advanced Engineering Mathematics* *Fall '16*
**Graph Based Motion Planner** - *Design Algorithm* *Spring '15*

## Work Experience

**Data Engineer** - Python, Scikit-learn, Pandas, Plotly Dash, Flask, Apache Airflow,

Apache Spark, Oracle DB, MongoDB *Jan '18 - Jul '19*
- *Rahnema Company*, Beheshti ave, Tehran, Iran.

**Back-End Developer** - Python, JS, PHP, Symfony, Git, Redmine *July '15 - Oct '16*
- *ZoodFood Company, IIG*(Iran Internet Group), Vanak sq, Tehran, Iran.

**Software Developer** - Java, MySql, HTML, CSS, Illustrator, Git *Aug '13 - Dec '14*
- *RAPNA*, Roshd Science & Technology Center, Tehran, Iran.

## Technical Skills

**Languages**: C, C++, Qt, Java, Python, Matlab, Bash, JS, Assembly, CUDA
**Database Systems**: MySQL, SQL Server, Oracle DB, MongoDB
**Frameworks, Operating Systems, and Scientific libraries**:
Linux, ROS, Git, Docker, OpenCV, Weka, Spark, Pandas, Scikit-learn, pgmpy
**Proficient in PyTorch, Tensorflow and Keras**

## Talks & Presentations

**Invited Talk: View Synthesis and NeRFs** - *Roise Lab* *Jul '21*
**Guest lecturer on Generative Adversarial Networks** - *Affective Computing* *Aug '20*
**Lecturer at CEIT Robotic Summer School** - *Introduction to ROS* *June '17*
**Presenter at 9th Linux Festival** - *Introduction to Virtual Robot* *May '17*
**Presenter at 8th Linux Fest** - *Introduction to Cuda, Caffe, ROS & Docker* *May '16*

## Volunteer Experience & Position of Responsibility

**Technical Committee of RoboCup AsiaPacific 2018** - Virtual Robot Rescue *Dec '18*
**Technical Committee of RoboCup IranOpen 2018** - Virtual Robot Rescue *Apr '18*
**Technical Committee of RoboCup IranOpen 2017** - Virtual Robot Rescue *Apr '17*
**Leader of Team SOS VR** - RoboCup Rescue, Virtual Robot Competition. *July '16*
**Member of 7th, 8th & 9th Linux Fest Organization team** *May '16*
**Director of Cognitive Robotics Lab** - Computer Engineering department *July '15*
**Coach and Captain** of Faculty Football team - Computer Engineering department *Sept '14*
**Chief Editor of 0&1 magazine** - *CEIT Students Scientific Chapter* *Oct '14*
**Editor at Pouyesh magazine** - *CEIT students association* *Sept '13*

## Languages

**English***(Fluent)*, **Persian***(Native)*, **Azerbaijani***(Native)*, **Arabic***(Fair)*

## References

**Mo Chen - Assistant Professor**
- School of Computing Science, Simon Fraser University
- *mochen@cs.sfu.ca* - Home Page

**Angelica Lim - Assistant Professor**
- School of Computing Science, Simon Fraser University
- *angelica@rosielab.ca* - Home Page

**Abel Gonzalez Garcia - Research Scientist**
- Hinge Health Co.
- *abel.gonzalezgarcia@hingehealth.com* - Linkedin

**Saeed Shiry - Assistant Professor**
- School of Digital, Technologies and Arts, Staffordshire University
- *saeed.shiryghidary@staffs.ac.uk* - Home Page

**Francesco Amigoni - Associate Professor**
- Department of Electronics, Information and Bioengineering, Polytechnic of Milan
- *francesco.amigoni@polimi.it* - Home Page